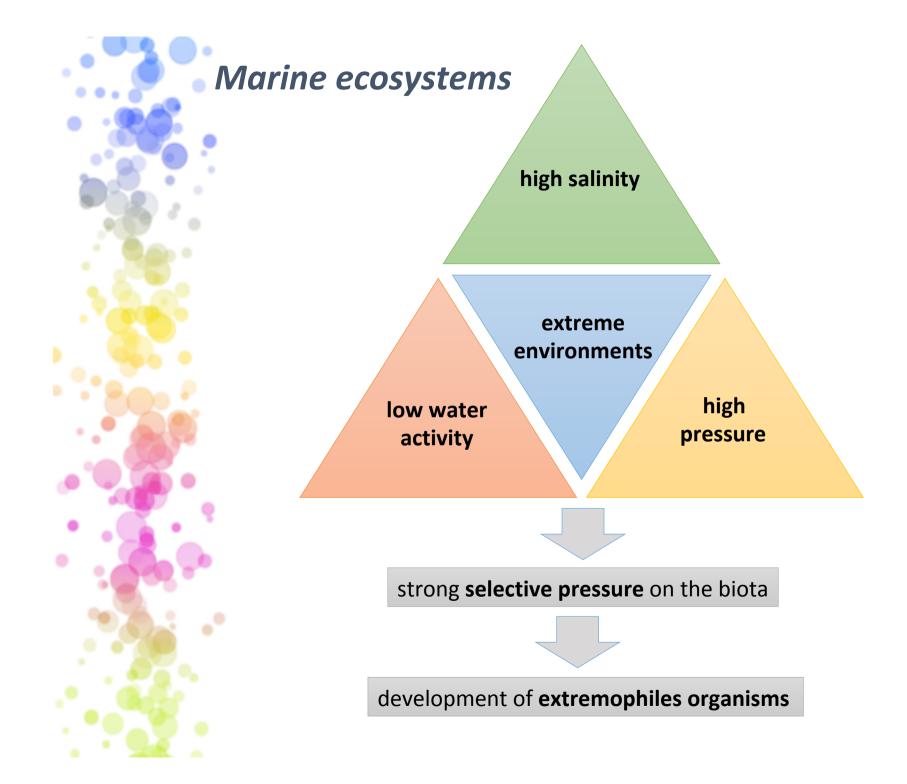






TWENTY THOUSAND FUNGI UNDER THE SEA

<u>Valeria Prigione</u>, Anna Poli, Elena Bovio, Iolanda Perugini, Luisella Reale and Giovanna Cristina Varese





Marine fungi

Marine fungi are distinct from their terrestrial and freshwater counterparts, both in their taxonomy, morphology and adaptation to an aquatic habitat.

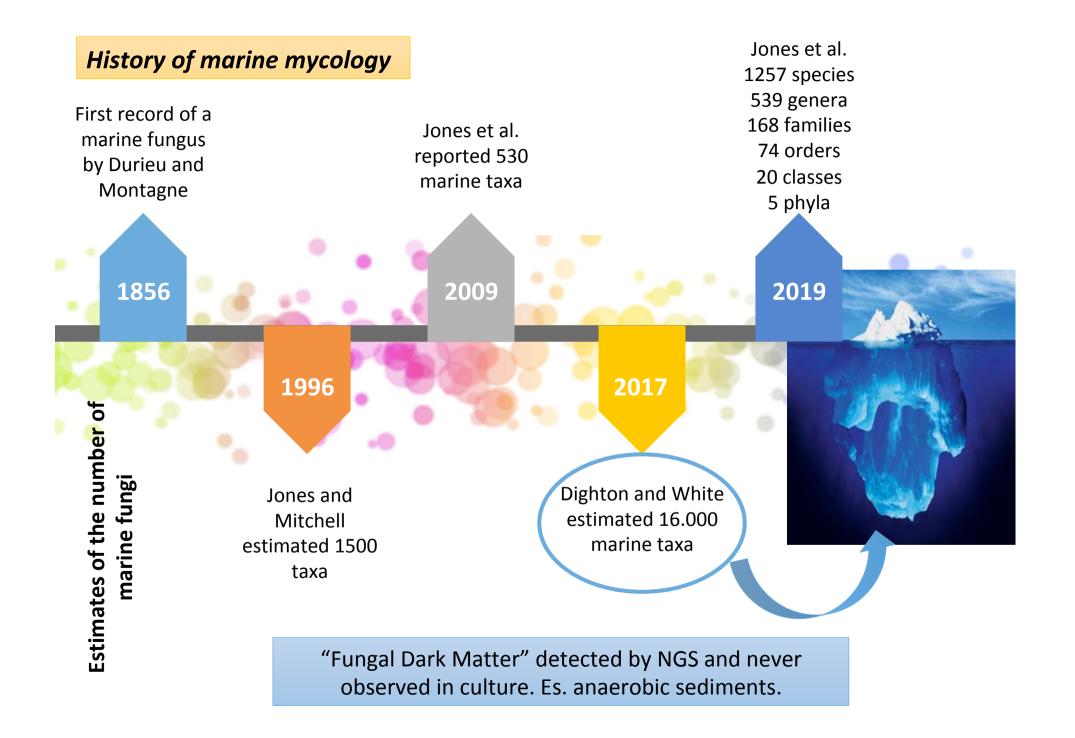
"**obligate marine** fungi are those that grow and sporulate exclusively in a marine or estuarine habitat"

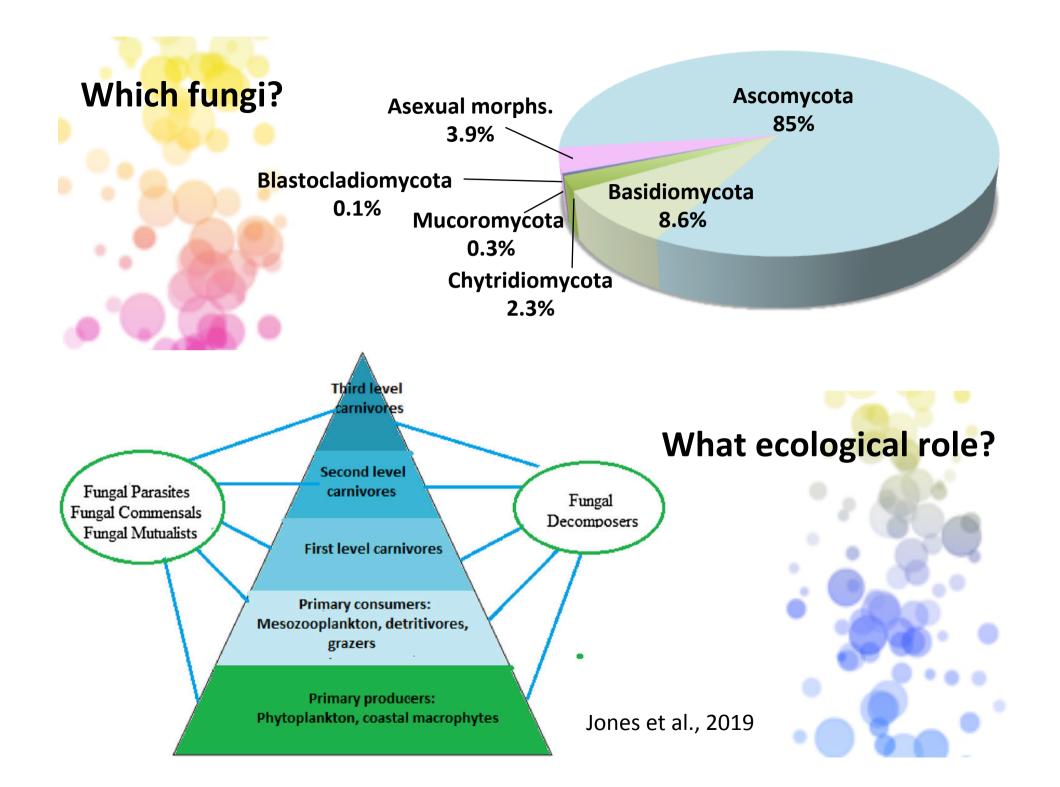
"facultative marine fungi are terrestrial species which actively grow and reproduce in marine environment"

(Kohlmeyer and Kohlmeyer in 1979)

"any fungus repeatedly recovered from marine habitats, because:

- able to grow and /or sporulate on substrata in marine environment
- it forms symbiotic relationships with other marine organisms
- it is shown to adapt and evolve at the genetic level or be metabolically active in marine environment" (Pang et al. 2016)





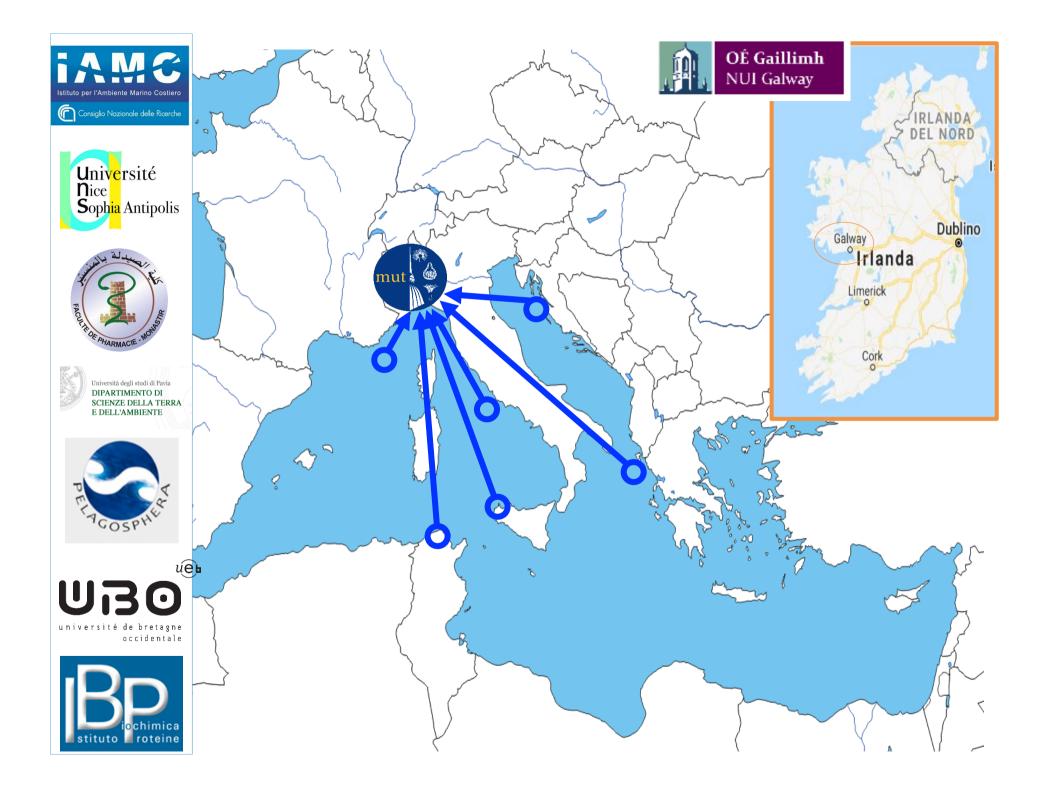
At the *Mycotheca Universitatis Taurinensis* (MUT) several research programs to assess the marine **fungal** *diversity*, mainly in the Mediterranean Sea.

Aims

- to isolate and identify the culturable mycobiota associated to different substrates
- to investigate the ecological role of marine fungi
- to discover and preserve novel taxa suitable for biotechnological exploitation























Mediterranean Sea

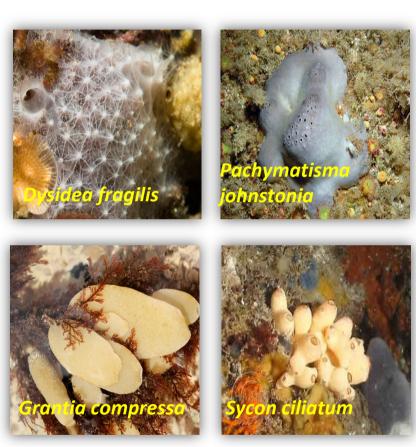
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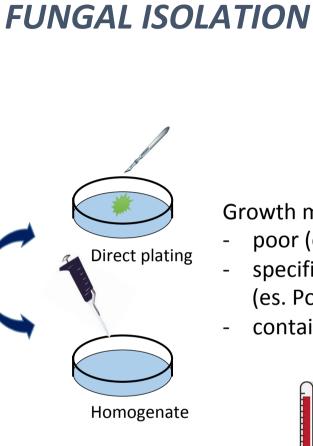








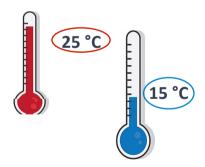




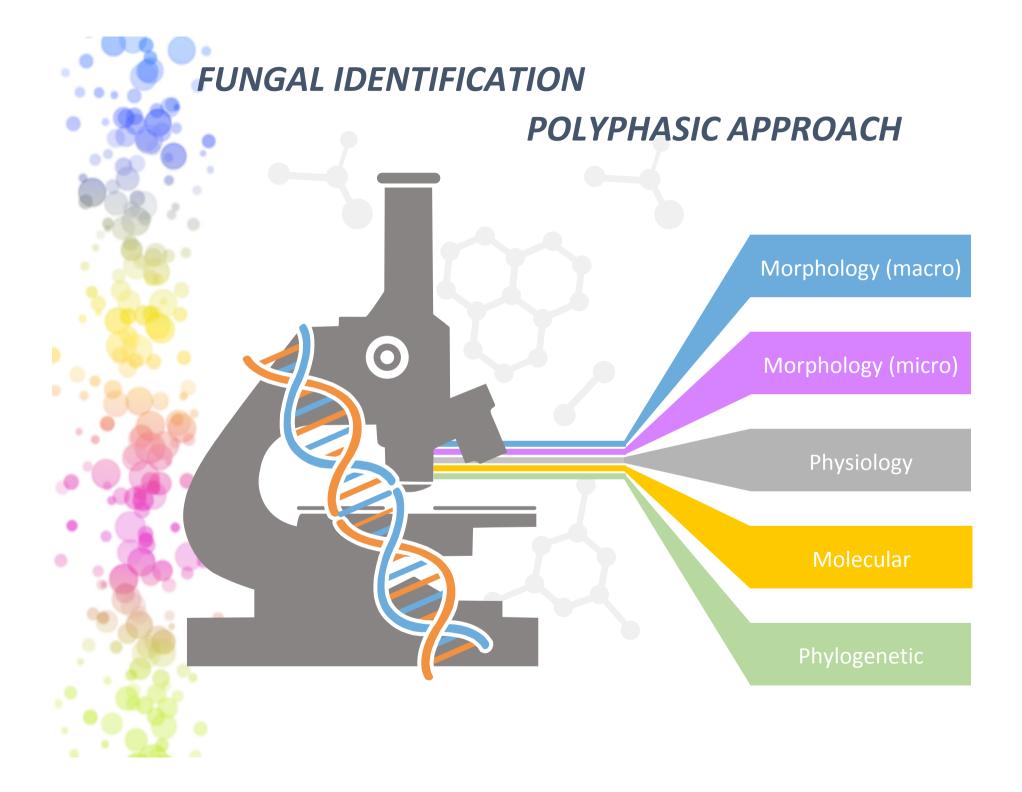
Conditions that mimic the natural habitats

Growth media:

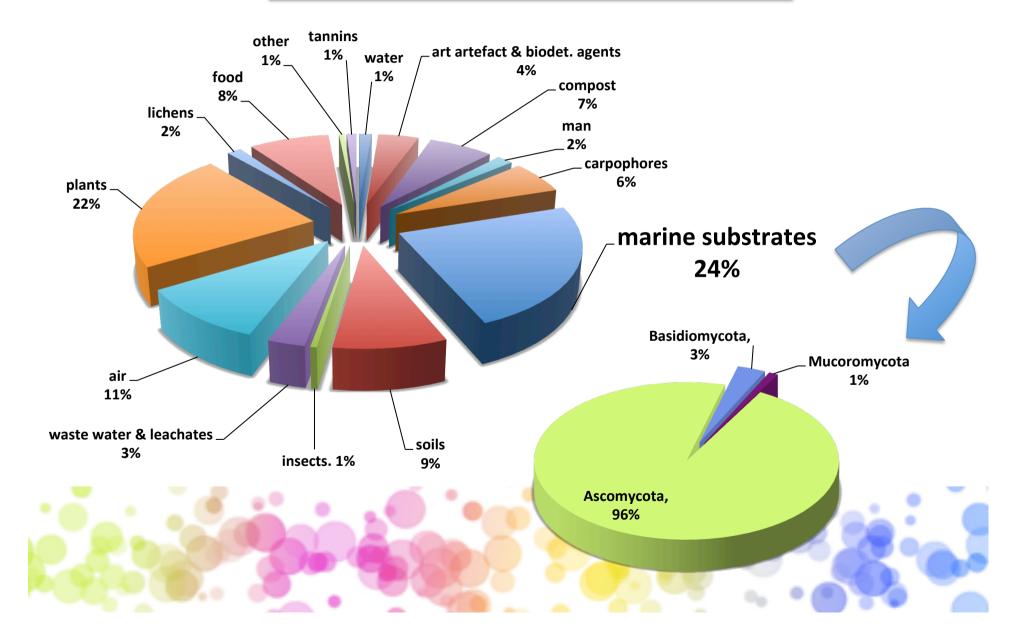
- poor (es. SWA)
- specific depending on the host -(es. Posidonia Agar)
- containing sea salt or sea water

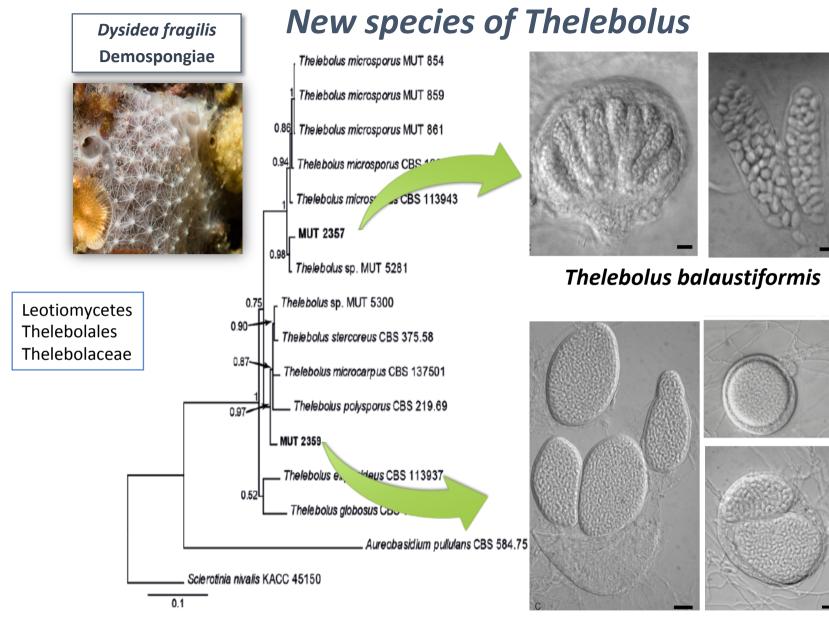


Pure culture



> 1,500 marine fungal strains preserved at MUT collection

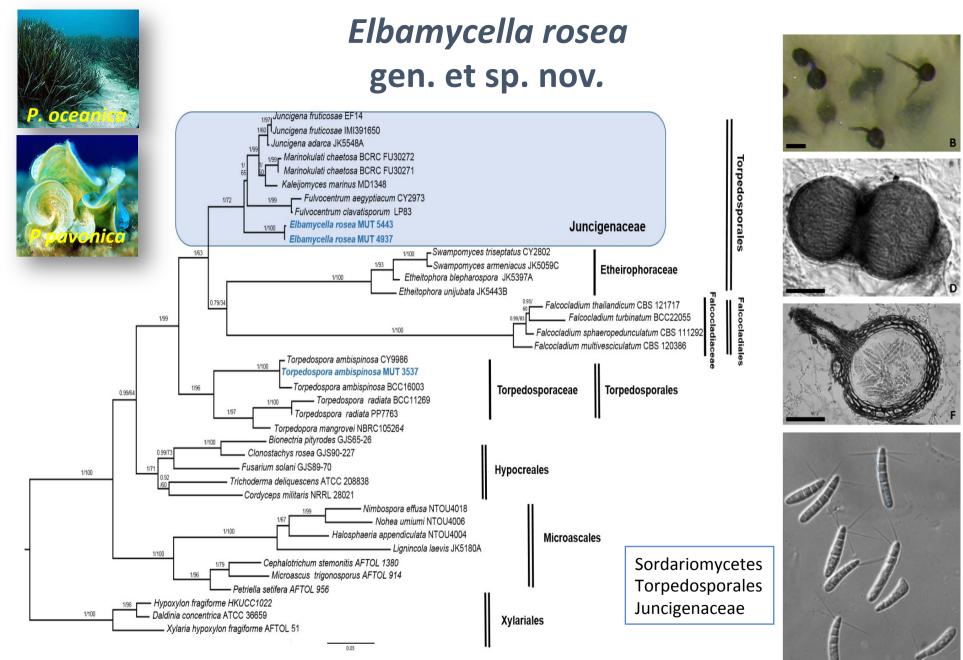




Thelebolus spongiae

Bayesian phylogram of the genus *Thelebolus* based on a combined dataset of ITS and beta-tubulin partial sequences.

E. Bovio et al., 2018. FUNGAL SYSTEMATICS AND EVOLUTION, vol. 1, p. 141-167



Phylogenetic inference of Elbamycella rosea sp. nov. based on combined nrSSU and nrLSU dataset

Poli et al., 2019. MycoKeys, in press.



CONCLUSIONS

The investigation of the marine mycobiota led to the isolation of new *taxa,* contributing to deepen our knowledge on fungal biodiversity in marine environments and to understand their putative ecological role.

All strains have been deposited at the *Mycotheca Universitatis Taurinensis* for *ex situ* conservation.

The preservation of new genetic resources will allow their future valorisation by Bio-science and Bio-industry.

Marine fungi have huge biotechnological potential.

They could be source of new molecules of pharmaceutical interest (antibiotics, antivirals, antitumor, etc.).



THANKS TO...

MUT STAFF



NATIONAL AND INTERNATIONAL PARTNERS

Università degli Studi di Napoli Federico II Università degli Studi di Pavia CNR – IBP CNR – IAMC Pelagosphera Fondazione CRT University of Western Brittany, France NUI Galway, Irland Université Nice Sophia Antipolis, France University of Monastir, Tunisia